

*REMARKS/ARGUMENTS**The Invention*

The present invention relates to a high-throughput method of distinguishing at least two molecules simultaneously in a sample comprising multiple molecules. The molecules to be detected are not amplified prior to being subjected to electrophoresis. In keeping with the inventive method, the molecules to be detected are imaged and their electrophoretic mobility is determined.

The Pending Claims

Claims 1, 3-23, 57-65, and 67-91 are currently pending.

The Amendments to the Claims

Claims 1, 3, 5, 7, 11, 18, 21, 62, 65, 67, 69, 71, 74, 80, 83, and 89 have been amended to recite that the method distinguishes at least two molecules simultaneously, rather than at least one molecule. These amendments are supported by the specification at, for example, page 10, line 30, page 11, line 24, page 25, line 16, page 26, line 24, page 27, line 22, page 30, line 21, page 35, line 17, page 36, line 36, and page 37, line 6. Claims 4, 6, 8, 68, and 70 have been amended to correct grammar in view of the above-described amendments. Accordingly, no new matter has been added by way of these amendments.

The Office Action

The Office Action has made the following rejections:

(a) claims 1, 3-8, 10-13, 15-22, 58, 60-65, 67-72, 74-76, 78-84, 86, and 88-91 are rejected under 35 U.S.C. § 103(a), as allegedly being unpatentable over U.S. Patent 6,485,625 ("the Simpson patent") in view of U.S. Patent 6,438,279 ("the Craighead patent"), and U.S. Patent 5,188,963 ("the Stapleton patent"),

(b) claims 9 and 73 remain rejected under 35 U.S.C. § 103(a), as allegedly being unpatentable over the combined disclosures of the Simpson patent, the Craighead patent, and the Stapleton patent in further view of U.S. Patents 6,221,592 ("the Schwartz patent") and 5,215,883 ("the Chu patent"),

(c) claims 14 and 77 remain rejected under 35 U.S.C. § 103(a), as allegedly being unpatentable over the combined disclosures of the Simpson patent, the Craighead patent, and

the Stapleton patent in further view of U.S. Patents 6,586,193 (“the Yguerabide patent”) and 6,120,667 (“the Hayashizaki patent”),

(d) claims 23, 57, and 85 are rejected under 35 U.S.C. § 103(a), as allegedly being unpatentable over the combined disclosures of the Simpson patent, the Craighead patent, and the Stapleton patent in further view of the Yguerabide patent and the Hayashizaki patent, and

(e) claims 59 and 87 are rejected under 35 U.S.C. § 103(a), as allegedly being unpatentable over the combined disclosures of the Simpson patent, the Craighead patent, and the Stapleton patent in further view of U.S. Patent 5,538,613 (“the Brumley patent”).

The claims have been amended to place the application in condition for allowance or in better form for an appeal. Accordingly, reconsideration of these rejections is respectfully requested, and entry of the amendment is earnestly solicited.

Discussion of Rejections Under 35 U.S.C. § 103

Claims 1, 3-8, 10-13, 15-22, 58, 60-65, 67-72, 74-76, 78-84, 86, and 88-91 have been rejected under Section 103 as allegedly obvious over the Simpson patent in view of the Craighead patent and the Stapleton patent, and, with respect to certain claims, in further view of other secondary references. The Section 103 rejections are traversed for the reasons set forth below.

As discussed in response to the previous Office Actions, the Simpson patent discloses a method for the detection of molecules in a sample, wherein the molecules to be detected are amplified via polymerase chain reaction (PCR) prior to electrophoresis and spectroscopic analysis. The Craighead patent discloses a method for detecting single fluorophore-labeled molecules (e.g., DNA) in a sample by electrophoresing the molecules in the sample through an integrated flow channel/optical waveguide device, as well as measuring the velocity of each molecule moving through the flow channel one at a time. The Stapleton patent is relied upon for its purported teaching of a method for analyzing nucleic acid samples that requires no amplification.

All of the pending claims, as amended, require distinguishing at least two molecules simultaneously in a sample comprising multiple molecules. Neither the Simpson patent, the Craighead patent, nor the Stapleton patent discloses or suggests a method that can distinguish at least two molecules simultaneously in a sample comprising multiple molecules, wherein the multiple molecules are not amplified prior to electrophoresis.

The Office Action relies upon the Schwartz patent, the Chu patent, the Yguerabide patent, the Hayashizaki patent, and the Brumley patent for their alleged disclosures of photobleaching during nucleic acid sequencing and during electrophoresis, the use of equilateral prisms to enhance the signal to noise ratio in analyte assays, the use of a pinhole in an electrophoresis apparatus, and the use of a microscopic objective lens in an electrophoresis

analyzer, respectively. Neither the Schwartz patent, the Chu patent, the Yguerabide patent, the Hayashizaki patent, or the Brumley patent, however, discloses the elements of the pending claims that are absent from the combined disclosures of the Simpson patent, the Craighead patent, and the Stapleton patent (i.e., distinguishing at least two molecules simultaneously in a sample comprising multiple molecules). Accordingly, the Section 103 rejections should be withdrawn.

Conclusion

If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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